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10/573,390

04/04/2006

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EXAMINER

PILKINGTON, JAMES

ART UNIT

PAPER NUMBER

3656

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                     |  |
|------------------------------|--------------------------------------|-------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/573,390 | <b>Applicant(s)</b><br>BAYER ET AL. |  |
|                              | <b>Examiner</b><br>JAMES PILKINGTON  | <b>Art Unit</b><br>3656             |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7,9-12,15-20 and 24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7,9-12,15-20 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/7/09</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 24 is objected to because of the following informalities: "the cage having pockets for holding balls" recited in line 10 should be deleted as it repeats what is claimed in line 2 of the claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 16 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 recites the limitation "the surface portion" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites "wherein the first flange is recessed on the outer edge of the first flange." It is not understood what the Applicant is attempting to claim. How is the flange recessed on itself?

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 9-11, 18 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato, JP 2001-140870.

Sato discloses an angular contact ball bearing comprising:

- an outer bearing ring (12),
- an inner bearing ring (11),
- a cage (14) having pockets for holding balls (13) positioned between the outer bearing ring (12) and the inner bearing ring (11), the ball bearing having an axis of rotation;
- the outer bearing ring (12) having an inner raceway (16) with a low axial shoulder (right side of Figure 1) and a high axial shoulder (left side of Figure 1), the low axial shoulder spaced radially farther from the axis of rotation than the high axial shoulder (see Figure 1), the low axial shoulder having a run-on surface (17) facing radially inward towards the axis of rotation, the run-on surface (17) sloping so as to increase in radial distance from the axis of rotation toward an outer edge of the low axial shoulder (see Figure 1, sloping up and away from the center of rotation the distance increases from the ball contact area toward the edge;
- the pockets (holding 13) delimited axially by a first flange (right side of 14) and a second flange (left side of 14), the first flange (right side) radially opposite the low axial shoulder and the second flange (left side) radially opposite the high axial shoulder, the first flange having a guiding surface (top of 14, see Figures 2, area with grooves 20) which radially opposes

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the run-on surface (17), the guide surface sloping so as to increase in radial distance from the axis of rotation towards an outer edge of the first flange (see Figure 1)

- wherein a smallest possible radial gap size between the guiding surface (top of 14) and the run-on surface (17) is greater than zero
- wherein the gap size is formed in a size equal to or greater than four micrometers to equal to or greater than eight micrometers (see paragraph 0036, NOTE: the way the claim limitation is written any value 8 micrometers or higher reads upon it)
- wherein the cage (14) is made of plastic (see paragraphs 25 and 26 of attached translation) and in that the guiding surface (top of 14) has radial, spaced apart- depressions (20)

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato JP'870 in view of Wilm, USP 2003/0021506 (cited by Applicant).

Sato discloses all of the claimed subject matter as applied above.

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Sato does not disclose that a radially inner contour line of the first flange is radially further away from the axis of rotation than a radially outermost contour of the second flange.

Wilm teaches a cage (see Figure 4) with a radially inner contour (4a) of the first flange (2a) is radially further away from the axis of rotation than a radially outermost contour (2c) of the second flange (2b) for the purpose of a lubricant storage area between the cage and the balls without changing the strength or reducing the number of balls (C1/L33-36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sato and provide for a radially inner contour line of the first flange is radially further away from the axis of rotation than a radially outermost contour of the second flange, as taught by Wilm, for the purpose of a lubricant storage area between the cage and the balls without changing the strength or reducing the number of balls.

8. Claims 12, 15-17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato JP'870 in view of Bonengel, USP 4,560,291.

Sato discloses all of the claimed subject matter as discussed above. Sato also discloses that the cage is made of plastic and a contact angle between a line perpendicular to the rotation axis and a contact line (see line Q) of the angular-contact ball bearing and the contact line intersecting a center of the ball in the pocket and

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thereby the contact line intersecting the axis of rotation at an acute angle (see angle in Figure 1).

Sato does not disclose that the second flange has an inner wall sub-portion defining an inner wall of a cylinder and a pocket angle between a center axis of the cylinder and a line perpendicular to the axis of rotation is less than the contact angle between the line, wherein the first flange has an inner wall sub-portion which is tapered inward and has an inside diameter being at a greater distance away from the axis of rotation than the center of the ball, wherein the inner wall sub-portion of the second flange merges with the inner wall of the first flange and the inner wall sub-portion of the first flange having a profile of a truncated cone, wherein the first flange is radially offset in relation to the second flange to such an extent that the radially outermost contour of the second flange and a radially innermost inner contour of the first flange together about a parting plane, the parting plane radially dividing the pocket from the first and second flange and wherein the outer edge of the first flange has a bevel/groove.

Bonengel teaches a second flange (1) has an inner wall sub-portion defining an inner wall of a cylinder and a pocket angle between a center axis of the cylinder and a line perpendicular to the axis of rotation (see Figure 5), wherein the first flange (5) has an inner wall sub-portion which is tapered inward (top of 5 at 7) and has an inside diameter being at a greater distance away from the axis of rotation than the center of the ball, wherein the inner wall sub-portion of the second flange (1) merges with the inner wall of the first flange (5) and the inner wall sub-portion of the first flange having a profile of a truncated cone, wherein the first flange (5) is radially offset in relation to the

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second flange (1) to such an extent that the radially outermost contour of the second flange and a radially innermost inner contour of the first flange together about a parting plane (9), the parting plane radially dividing the pocket from the first and second flange and wherein the outer edge of the first flange has a bevel/groove (see 18 in Figures 4 and 5) for the purpose of providing a cage which rubbing between the walls of the cage pockets and the balls is very small and a free space is provided for receiving lubricant (C1/L21-29).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sato and provide the second flange with an inner wall sub-portion defining an inner wall of a cylinder and a pocket angle between a center axis of the cylinder and a line perpendicular to the axis of rotation is less than the contact angle between the line (result of the Sato contact angle with the structure of Bonengel), wherein the first flange has an inner wall sub-portion which is tapered inward and has an inside diameter being at a greater distance away from the axis of rotation than the center of the ball, wherein the inner wall sub-portion of the second flange merges with the inner wall of the first flange and the inner wall sub-portion of the first flange having a profile of a truncated cone, wherein the first flange is radially offset in relation to the second flange to such an extent that the radially outermost contour of the second flange and a radially innermost inner contour of the first flange together about a parting plane, the parting plane radially dividing the pocket from the first and second flange and wherein the outer edge of the first flange has a bevel/groove, as taught by Bonengel, for the purpose of providing a cage which rubbing between the walls of the



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cage pockets and the balls is very small and a free space is provided for receiving lubricant.

### ***Response to Arguments***

9. Applicant's arguments filed 4/7/09 have been fully considered but they are not persuasive.

10. The Applicant argues that none of the prior art discloses a "low shoulder and the opposing surface of the cage are sloping outwardly axially away from the center of rotation."

First the claim does not address "sloping outwardly axially away." It is believed that Applicant means sloping radially away from the center of rotation as the first flange moves from the center to the outer edge. This feature is clearly depicted in the Sato document and can be seen in Figure 1.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES PILKINGTON whose telephone number is (571)272-5052. The examiner can normally be reached on Monday - Friday 7-3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571)272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JAMES PILKINGTON/  
Examiner, Art Unit 3656  
4/14/09

/Richard WL Ridley/  
Supervisory Patent Examiner, Art Unit 3656

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